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Campana
Recipes for ceramic photography

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NOTICE

N attempting to produce china photographs, a very important requisite is the perfect cleanliness of the materials used in the room, bottles, baths, drying, ect. Any dust settling in glass plates will produce a mark, spoiling the picture, and the work should therefore be always very clean and

accurate. If possible, choose a room with a north light, as here you are not bothered by the sun. If this is not possible, you may hang a yellow curtain on the window, and this will modify the light to a large degree. Do not expose developing pictures to direct sunlight. Remember that developing will require much longer in a winter day than in summer, when the light is very intense. Be very careful in the drying and in the developing, and keep a very strict tab of your experience and mistakes, as this will teach you how to conduct later works. The writer has found that the records

kept during unsuccessful attempts were good lessons, and could measure by those mistakes some details and proper time for drying and developing, which details often vary according to weather conditions, room location, etc. In this

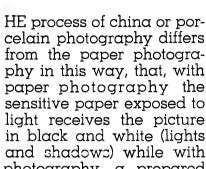
booklet the reader will find the different periods in the work separately explained and placed in succession according to the need. A scale, measuring glass, washing pans, etc., can be purchased in any town where photographic supplies are sold, and ingredients for the making of all solutions given in this book can be purchased at any drug store. Colors in powder for the dusting of the plates, retouching, etc., with their prices, are listed in the end pages of this booklet and can be purchased at reliable wholesale dealers in ceramic colors, as also at the writer's place in Chicago, Ill. The drying cabinet can be made by any carpenter and the tin box by any tinsmith. I hope to have included herewith any necessary information that may become useful to my reader and am certain that a close following of my rules will give guick and perfect results.

To avoid a one-sided opinion in this line of work I have also added, in the end of this booklet, other recipes used by other workers in ceramic photography, which recipes are considered successful. The only variation of the recipes in the whole production of the picture lays in the changes of the light sensitive solution, and perhaps in the making of the collodium solution.

The Publisher.

D. M. CAMPANA

INTRODUCTION



china photography, a prepared plate (instead of paper) exposed to light receives the picture by adhesiveness. Later, this adhesive film is dusted over with a black powder, and the perfect picture will then be seen on the prepared plate. The photograph on paper is made on the sensitively prepared paper, while the photograph on china is produced on a sensitively prepared glass plate. To make a photograph on paper you need a negative plate; but to make a photograph on china you

need a positive plate, as on account of the dusting process, the lights and shadows work contrary to the former.

A photograph on paper is fixed and quite complete.

A photograph on china is fixed, dried and covered with a skin of collodium preparation, which will peel off, carrying the picture with it. This skin is applied on the china and fixed in. This is china photography in a nutshell, described above in a manner that may give you a general idea of the work.

Do not believe that good results can be obtained indifferently, as there are a good many details requiring very accurate handling, recipes for baths, washes, drying and coating which must be followed to the letter.

The proportions given in this booklet are well tested and are nothing else but the fruit of many years of successful work and experience. I can therefore guarantee good work to anv person following the rules given here, and may add that if your first trials are not perfect it may be attributed to awkwardness, which is natural when attempting an entirely new line of work.

The more you become acquainted with the work and the less your perplexity, the easier and quicker will the pictures be completed. It is to be hoped, of course, that our reader may be acquainted with the general everyday photography on paper, as we do not deal with ordinary picture photography in this booklet, its fixing, making the negative or positive, etc. If you do not know how to work with a camera you should learn that first.

Our instructions begin from the time you have the negative on hand; and if you are given a subject to reproduce on china, or if you wish to put anybody's picture on china you must use the camera and attend to that matter in a regular way, as taught by the common process of photography on paper.

We simply teach you how to produce a film with a picture on, that can be transferred onto the china and fixed in, to be permanently protected from injury. These pictures are very much used for monumental work, where the weather is liable to spoil any other picture.

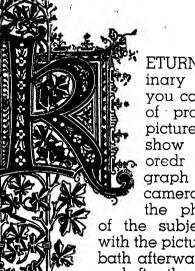
They are also used as foundations for miniature work, as the colors applied cover the photograph underneath.

The possibilities of this work are, naturally, very large, and besides being profitable, is very interesting.

In trying to explain the process in every little detail we have included many explanations which will appear obvious to our readers as soon as they have made a few trials.

Of course a proper drier, convenient trays, measuring glass, filter, funnel, etc., are necessary to obtain good work.

PRELIMINARY WORK



ETURNING to the preliminary work done before you come to the operation of producing a suitable picture to be fixed, we will show beginners that in oredr to make a photograph they must have a camera. They must take the photographic picture

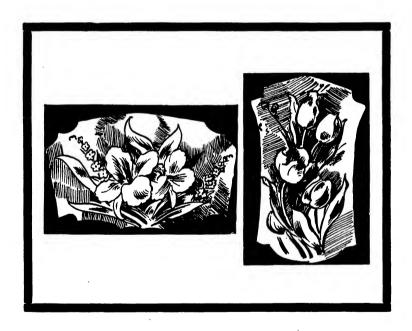
of the subject, pass the plate with the picture through a special bath afterward, so as to develop and fix the impression on the glass plate. This glass plate with the impression is called the negative, as known by all photographers.

From this negative plate you must now make a positive, which is nothing else than the first plate placed in front of a second plate

and exposed to light. This second plate is a prepared one like those plates you place into the camera when you take a photograph, and to make a positive you expose a plate instead of the paper under the first negative plate. Only, instead of exposing it to the daylight, you use artificial light, such as gas light or electric light or oil light. The brighter the light, the shorter will be the exposure time. Daylight is altogether too

strong. See that your positive is good and sharply developed, and fit it as you did your negative. When this positive is fixed and dry, you are ready for the work described here under the name of Ceramic Photography.

The word ceramic embraces all clay or earthenware, but these photos can also be made on opaque white glass, provided a proper degree of fire is given them during the burning process.



All materials for Ceramic decorators - Also for painting in oil colors, water colors and pastels. A large list of pictures to copy from. Catalog on request. Books for Artists. See few listed on the end page.

DRYING CASE



NE of the most necessary and particularly selected articles for Ceramic Photography is the drying case, as the results of the pictures depend on the proper drying of the prepared plates.

If you wish to do the work correctly you should build one for this special purpose as follows:

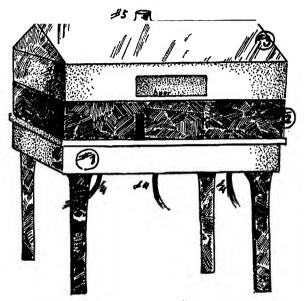
Take a table, No. 1, which may be of any size, but must be level, solid and fast, and have over it the tin box, No. 2, which has a tin bottom and is open on top.

Now place the cabinet, No. 3, which also has a tin bottom, over the above No. 2 box and the cabinet must close up the latter completely. Now have 3 gas connec-

tions, as shown in figure No. 4, going into the tin box, No. 2, one at the right, one at the left and one in the center, to produce as even a heat as possible.

If your drying box is small, it is possible to use small alcohol lamps instead of gas, and in this case you can have one on every corner and one in the center, keeping the flames very low so as not to heat too much. Have a thick piece of ground glass, as long as the front of the box and as high as the line of the door; place it standing at the side of the door and another very much the same size at the back opposite the door. See that they are solid and level.

On the edges of these two glass bars you



place the shelves, which are also made of strong glass, about $1\frac{1}{2}$ or 2 inches wide. (See page 18.)

Have 4 of them about 3 or 4 inches apart, according to the size of the plates to be laid on them.

At the bottom of the cabinet, No. 3, below the shelves, place a fine screen and over it a very fine sheet of clean paper, to avoid any dust which might be stirred up by the heat underneath.

See that everything is perfectly clean and free from dust, as dust on your plates will spoil the work.

Also have the shelves on a perfect level with each other, and to do this use a leveling instrument, as used by bricklayers, etc.

This operation requires very careful attention. The sides and back of the drying cabinet are made of wood, with a glass in the front, that slants backward.

Through this front you can see the inside. Have the door aperture as small as consistent, so that you can pass the hand and plate through it. Of course there must be an aperture in the tin box, No. 2, also, so that you can regulate the heart and pass your hand in, in case you use alcohol lamps.

On the cabinet there is a small aperture, No. 5, so as to allow the humidity to escape.

The temperature in the room should be about 66° Fahrenheit. Place your thermometer in the cabinet. If it registers higher than 110° Fahrenheit, regulate the heat, or your sensitive preparations will otherwise be injured.

LIQUID SOLUTIONS

The evening before you wish to make the ceramic photograph make the following solutions:

Solution No. 1 contains:

 $3\frac{1}{2}$ grams gum arabic.

4 grams honey (clean and fresh).

5 drops alycerine.

7/8 ounce clean water (measure it with a

measuring glass).

Place this in a clean glass bottle and shake well, so that the gum arabic may be well dissolved in the morning. Be certain that the honey is weighted in a very clean scale and also that it is fresh. This solution should not be used day after day, but must be made fresh for the following day only.

Solution No. 2 contains:

- 6 grams bichromate of potash (chemically pure).
- 6 grams bichromate of ammonia (chemically pure).
- $3\frac{1}{2}$ ounces distilled water (measure this with a measuring glass).



This mixture must be shaken well and often before it is well dissolved. Use enough of this according to directions and reserve the balance for further use, as it will not spoil. Each solution is in a separate bottle and each bottle plainly marked with numbers 1, 2, 3, 4, 5.

No. 3 solution contains:

1-1/10 ounce collodium 4 per cent.

13/4 ounces sulphuric ether.

3 drops caster oil.

This solution No. 3 must be well shaken and then placed away in a quiet place.

Use in the proportions given and keep the balance for further use.

If it becomes thick in time, thin it down with sulphuric ether.

Solution No. 4 contains:

½ ounce glycerine.

½ ounce ammonia.

The proportions of this mixture No. 4 need not be very accurate, just put about the same quantity of the two liquids in a bottle and shake well.

Solution No. 5:

Place 2 pounds borax in a large bottle (1 gallon capacity) filled with clean, cold water, shake well and leave it quiet until the morning after, then shake it well again. If possible, use small pieces of borax, as they disolve quicker.

Clean the plates to be used for the next morning with the solution No. 4.

Pour a few drops over every plate and clean well with filter paper, then stand them against the wall with clean side inward.

Be certain to clean all dust from the plates, breathe on them and rub with filter paper, especially on the side to be used for the picture.

Clean the edges and all and place them handy in the drying cabinet.

Have the alcohol lamps or gas in good condition and the plates to be reproduced ready at hand, so that you may have no trouble in the morning.

THE MORNING WORK



IGHT the gas (or place the 5 alchol lamps, one at each corner and one in the center of the tin box, No. 2) and leave the door open a trifle. Have the draft aperture in the cabinet, No. 5, open. Have a very low flame, barely ¼ inch, as the preparation on the plates will burn if too warm. The lamps (or gas) can be kept lit while you prepare your other things.

Now you must make the mixture, which is the most important and easily spoiled; and this will be called from now on "The Light Sensitive Mixture No. 6." It consists of:

7/8 ounces of solution No. 1, 7/20 ounce of solution No. 2. 35 drops of ammonia.

Measure everything correctly and keep this "Light Sensitive Mixture"

very well protected from light.

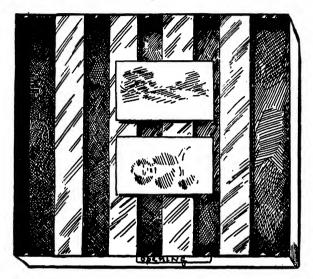
Any one of the 5 solutions can stand the light separately; but not this one, which is composed of No. 1 and No. 2.

To make this mixture you must work in the dark room used for fixing and developing photographs.

14

Place a clean glass funnel into the mouth of a very clean bottle, put filter paper over the funnel and pour the mixture slowly through it.

Now see that the drying cabinet stands very



Inside of Cabinet

level and that the glass shelves are also perfectly level. To do this use a leveling instrument, and adjust every point, so that you are supe everything is on a perfect level.

The thermometer must register on even heat of 110° Fahrenheit. The thermometer must be exactly in the center of the cabinet to make sure that the degree of heat is just right.

Now proceed to flood your plate with the "Light Sensitive Solution."

Before doing this, brush the plate off very carefully with a very clean dry brush (do not blow on it) and see that no dust is on it. Place the plate over your open hand, horizontal, and flood the "Light Sensitive Mixture" over it; let it spread nice and even and pour the surplus back into the bottle.

Do not allow the last drops to run off the glass plate. If you have any difficulty with the mixture not spreading well, you may use a clean finger to help a bit. When the plates are not perfectly clean this mixture will draw together.

Before applying the "Light Sensitive Mixture" to the plate prepare your baths, which must be ready at hand when needed after the collodiumizing of the plates.

Strain the borax (solution No. 5) through a very fine close linen cloth, which is free from lint, into a pitcher and afterward pour it into 3 separate dishes like those used for photographic work. Number them No. 7, No. 8, No. 9. The No. 9 should be deeper than No. 7 and No. 8. (See page 24.)

Pour the borax solution into all three dishes, but have much more in No. 9.

See whether the liquid is clean and clear, as the baths may be flaky if the linen cloth is not very close.

Leave these dishes alone.

The color of the "Light Sensitive Mixture" coating should look lemon yellow, light and pretty.

Now place the plate into the drying cabinet, exactly horizontal, resting on 2 or 3 shelves, according to the size of the plates.

You will now understand how necessary it is to have a perfect level in the drying cabinet, as

otherwise the liquid would run toward a certain part of the plate. This mixture, with the temperature at 110° Farenheit (and no more) will take about 45 minutes to dry.

After this time, try on the edges of the plates with your finger, to see if they are dry and not sticky; then take them out, or they might burn.

The coating on the plates should now be a little darker than before, a nice egg yellow, but must not be brown, as in this case the coating is overdried and the best thing to do is rub it off.

Having placed the positive plates in the cabinet to warm a little, you now open the exposure frame, same as is used for all photos, and place in it the positive with the picture side up (towards you).

Now take the plate with the "Light Sensitive Coating," which is just taken out of the drying cabinet, and place it over the positive with the coating toward the positive, so that they are very close together. Close the exposure frame very tight and expose it to the daylight; no sunlight must touch the frame.

The time for the exposure varies according to the strength of the daylight.

In the summer time from 30 to 45 minutes' exposure is sufficient and on a dark picture even an hour.

A weak positive must have a shorter time for the exposure than a dark and strong one.

In the winter, when the weather is very cloudy, the exposure sometimes requires from two to three hours.

It is always better to have the picture rather a little over-exposed than not enough, as in this latter case the picture looks like a dark mass. Notice — Everything requires practice and it will be necessary to experiment and keep a correct record of time given to the pictures you are making and keep an account of the results.

In this manner you will be able to improve your work continually.

Over-exposure will cause the plate to take up color in dark spots and omit the medium tones, thus spoiling the modulation of the lights and shadows, also the high lights will take up color, making the picture flat.

As soon as the picture has been exposed enough take the prepared plate and place it into the drying cabinet again.

If you place a white article behind it it will appear like a negative.

Leave it there about half an hour, and if it is a hot summer day from 15 to 20 minutes may be sufficient.

If the plate is not sufficiently dried out, the picture will appear as nothing else than a black spot, and on the contrary, if too dry, the plate will retain very little powder when you dust it.

At this point, after the half hour's drying, it would be advisable to increase the heat in the cabinet by turning the flames higher, and you may leave the picture 4 minutes (and no more) as it is in this quick extra heating that the picture develops properly.

You now proceed to develop the picture by dusting the powder over the dried plate.

The color used for this process can be bought ready for use, and considering the very small quantity taken up by each plate, the cost is very small. In the end of this book we give a small list of colors and prices. These shades are very reliable and you must beware of articles sold by cheap concerns.

If you wish to have a black shade or a brown one, use either of those two developing colors.

Have the powder very well sifted and laying on a clean dish. Take a good-sized pointed china brush and with it pick up some of the powder and lightly move your brush around and around on the picture. Take more of the powder and proceed in the same manner until the entire picture is well covered.

Brush off (do not blow off) the surplus dust, and be very careful that you have the color on very even. This dusting can be done near the window, and by holding a white glass or paper behind your plate you can very easily detect mistakes.

If there are a few small cracks in the picture the collodium will draw them together.

Again see that all surplus powder is brushed off the plate, clean the edges with your fingers and begin to apply solution No. 3, which is the collodium film (see page 23). Pour at C, move the plate so that it will run to B, and then to A; then pour at D. Keep moving the plate from left to right without allowing the collodium to run back. You pour about as much collodium onto the plate as will stay on.

If the film is too thin it will not hold all the powder and will tear when taken off the plate.

If, on the contrary, the film is too thick or cloudy, the picture will blister in firing, or the film, will draw up and will not cling well and smooth to the china.

Close the collodium bottle right after using it.

As soon as the collodium skin has become stiff and dry you must loosen it at the edges of the plate all around. You may use a knife.

Now place the plate into bath No. 7.



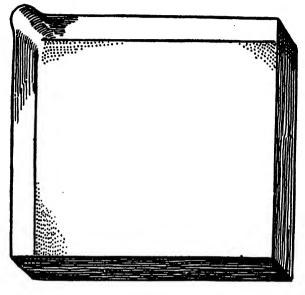
Collodium Flooding

If everything was done according to all instructions given, the collodium film should peel off by itself; but if it does not come off readily, move the bath very lightly to and fro, keeping the picture in the water for 8 minutes (no more) as a longer submersion would injure it.

You can now see the film swimming around in the water.

Take a piece of white glass (or china slab) and slide it into the water under the film and catch it onto the glass with the color turn upward and the collodium side down.

Now spray over it lightly a pint or two of very clean water and run it off; then place the film in cleansing bath No. 8.



Bath Pan

In handling everything be certain to have all utensils and hands very clean.

Leave the film in bath No. 8 for about 2 minutes, then picking it up with the white glass again you slide it into bath No. 9 and from there it should be placed onto the white china where it belongs. If the china is not at hand you may keep the film in the water for about an hour (but no more).

If your china is a small brooch or a plate you can slide it under the film in the water and get it to lay right on the proper place.

If it is a large piece of china you may handle the film carefully and place it on the proper spot.

If any air bubbles appear under the film prick them, very carefully with a fine pin.

Put the china with the picture in a warm room to dry and when dry, flood some clean turpentine over it and the picture will show plainly whether it is perfect or not. You can now determine if you have been successful.

Cut off and trim away any small pieces of the film (around the picture) to give it a symmetrical shape.

If you are careful before the firing, you can etch a few small high lights into the film and you can also apply small details and sharp touches in the shading with a powder color used for retouching such photographs.

Mix this color with a trifle of fat oil of turpentine and pure turpentine.

Use a small pointed brush and proceed as with miniature work; that is, if you dusted in brown, use brown for retouching, and if black was dusted in, retouch with black.

You can still retouch it after the firing if necessary, or paint over it and refire.

Of course in retouching you must use a color similar to the one that you used for the dusting. When this is dry the picture is ready for the firing.

If the pictures have not fired very glossy next time you may add 1/5 flux (or more if necessary) to the developing color. Use the quality given in the end of this booklet. Grind the flux with color and pure turpentine and dry well before you use it for the dusting.

Remember that the more flux you use the stronger the gloss; but too much flux will destroy the strength of the color.

Other recipes, which are used successfully by foreigners, may be of interest to persons interested in this line of work.

As I wish to give everything in this booklet that may lead to good work, I have looked up and tried the several recipes and find that if carefully worked out they all give satisfactory results

RECIPE No. 2

To procure the "Light Sensitive Mixture" make the two following solutions:

Solution First:

8 parts gum arabic.

20 parts white sugar.

4 parts honey (fresh and clean).

3 parts alcohol.

10 parts distilled water.

In the summer from 3 to 4 drops of glycerine is added; in winter only from 2 to 3 drops, as is shown add less in damp cold weather than in warm weather.

First soak the gum arabic until it is dissolved; then add the other ingredients, except the alcohol.

Do this work with luke warm water and when it is cool add the alcohol.

Filter the whole mixture through a white woolen cloth, slightly squeezing it. Cork the bottle and keep it in a cool room: This solution will keep from 3 to 6 months.

Solution Second:

20 parts bichromate of ammonia.

200 parts distilled water.

This mixture should be kept in a dark place. When you are ready for the plate take as follows:

5 parts of first solution.

10 parts of second solution.

15 parts of distilled water.

Warm the solution to about 122° Fahrenheit and filter twice through filtering paper.

All this work is to be done in a dark room.

When filtered you flood the plate with it, as mentioned in the first recipe, page 19, and put it to dry. Be very careful that no dust touches your plates.

Solution Third:

600 parts alcohol.

400 parts ether.

15 or 20 parts collodium.

This third solution is to collodiumize the plate.

The method for applying collodium and further work is the same as mentioned in the original recipe, page 22.

Notice — You can purchase this collodium at the drug store. Buy 2 per cent collodium.

To 100 parts of same add 10 parts of alcohol, because a more alcoholic mixture gives an easier running collodium skin.

RECIPE No. 3

Another recipe for a "Light Sensitive Mixture" is made as follows:

Solution First:

12 ounces water.

l ounce sugar.

11/4 ounces gum arabic.

Allow a day for dissolving it. Filter through filter paper twice, until the liquid is very clear and odorless.

Solution Second:

250 grams water.

30 grams bichromate of potassium.

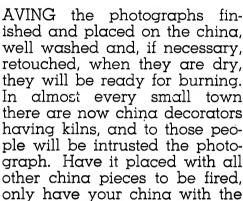
Filter this solution the same as the first, until it is absolutely clear and clean. Keep it well corked in a cool dark place until you want to use it.

When you are ready to make the "Light Sensitive Plate" mix equal parts, say 15 grams each, of these two solutions and add from 3 to 4 drops of ammona to the mixture. Shake well, and after standing about an hour it is ready for use.

Follow instructions for application, drying, etc., as given in first recipes.

Also use collodium solution as used in the previous recipes.

THE BURNING OF THE CHINA PHOTOGRAPHS



photograph placed rather far back into the kiln about 4 or 5 inches from the bottom. The person that fires the kiln will have to follow the work in the usual way, as done with any decorated china, as your special picture does not require any special attention. Should there be no kiln at hand for the burning and the reader should desire to purchase one for the purpose, it will be more expedient to purchase a small book entitled "The Firing of China and Glass," by D. M. Campana. Chicago,

and this booklet (costing only 55c) will not only give every detail about firing, but gives also the sizes and prices of all reliable makes of kilns found at different manufacturers. Beware

of cheap kilns sold for few dollars, as those weak kilns, made of tin, allow fumes and gas to enter the pot, and cause everything to come out matt and gray. After you have good success in the handling of the films do not destroy your work by bad firing.

Gas and humidity destroy the gloss of the china colors and give a gray appearance to everything. When the photograph is burned, you can paint over it with colors used for china decorating. Apply your flesh tones, background, etc.. allow to dry and reburn it as you did before. Such a photograph, if necessary, can be burned several times without injury. However, if in the beginning you consider painting the picture on the china, it is advisable to have a light print instead of a dark one, because in this case the colors you apply over it will cover the photograph underneath, and you can make a good miniature imitation. The names of the colors used for the flesh tones are flesh soft tint, for the clear shades, flesh shadow, flesh dark shadow, flesh gray, flesh transparency, each one of them costing 30 cents per vial. To mix the colors use mixing medium, costing 30 cents per ounce. (See further for full list.)

COLORS USED FOR DUSTING THE LIGHT SENSITIVE PLATE

Photo Brown No. 4, per ounce \$1.50, vial 50c (for dusting).

Photo Black No. 6, per ounce \$1.50, per vial 50 cents (for dusting).

Dark Photo Tint No. 1, per ounce \$1.50, per vial 50c cents (for dusting).



Photograph of the Writer of this Book.

The Photo was made in the regular way, and transferred onto the china. It could be painted over, using china colors and burned at 1400° F.

Photo Black Body (Koerper), per ounce \$1.50, per vial 70 cents (for retouching).

Colors used for painting the photograph after

it is burned:

The following 40f per vial

Flesh Soft Tint, Flesh Gray Tint, Flesh Transparency, Flesh Shadow, Flesh Dark Shadow, Hair Black, Hair Brown.

Mixing Oil, 40 cents per ounce.

BRUSHES

Polished camel hair brushes costing from 20 to 50 cents, according to size. Fine water color brushes will be also satisfactory.

Book of Firing China and Glass, by D. M.

Campana, Chicago, 55c.

For information on Kilns or material write to the publisher in Chicago, Ill.

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